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OPHTHALMOLOGY.

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ORIGINAL ARTICLES.

TWO CASES OF VASCULAR NÆVUS OF THE IRIS.

THE CLINICAL HISTORY OF THE ONE:—
A CAPILLARY ANGIOMA,
BY J. MORRISON RAY, M.D., LOUISVILLE, KY.,

OF THE OTHER:—
A VENOUS ANGIOMA,
BY A. R. AMOS, M.D., DES MOINES, IOWA,

THE HISTOLOGICAL EXAMINATION,
BY ADOLF ALT, M.D., ST. LOUIS, MO.

With One Colored Plate and Seven Illustrations in the Text.

THROUGH the kindness of Dr. J. M. Ray, I received part of an eye having a growth of the iris, accompanied by the following history of the case:

Mrs. S. W., 39 years of age, presented herself at my clinic n February, 1900, complaining of pain around, and dimness of sight in, the left eye. The history she gave at that time was as follows: When five years old she had an attack of erysipelas of the face, which affected that eye, a peculiar dark spot making its appearance, but the sight remained good.

This spot showed no change until four or five years ago, when it began to enlarge and became more noticeable. Soon after this the eye became weak and watery, and when used very much a dull heavy pain would be felt in the eye extending to the brow. For the past two years this discomfort has increased and the sight has become more blurred. In the last three weeks the pain has become severe, the sight worse, and the lid began to drop. No family history of importance; general appearance robust. Examination showed a drooping of the lid, some conjunctival injection, especially along the upper sclerocorneal margin. On the upper inner portion of the iris is a brownish mass about the size of a coffee-bean. (See colored plate.) It fills the iridocorneal angle, presses firmly against the back surface of the cornea and extends downward, apparently in the substance of the iris, to near the pupil margin; it does not involve the latter, but hangs over and encroaches upon the pupillary space, covering about one-third of its upper inner area. On the nasal side of the growth it seems deeply incorporated in the iris-tissue; on its temporal side it seems to overhang the iris like a sac, and is of a lighter brown color. At its periphery only is it in contact with the cornea and of a dark brownish color, this color gradually fading to the apex of the growth which overhangs the pupillary space. Where not in contact with the cornea, the surface of the growth appears roughened like a berry, and its edges are uneven and ragged. The remaining portion of the iris seems normal, V. $= {}^{20}/_{LXX}$; the fellow eye has vision of $^{20}/_{XX}$. The portion of the iris not involved in the growth responds to light. Ophthalmoscopically, no visible extension to deeper parts of the eye is detected and the fundus is normal. The tension is normal.

March 2. She came again complaining of much pain in and around the eye. The circumcorneal injection has increased; the lachrymation is greater and the eye sensitive to light. V. $= {}^{20}/_{LXX}$.

March 6. Examination shows eye still painful, pupil dilates well by a mydriatic, except at the seat of the growth. V. $= {}^{20}/_{LXX} =$ w. + 3 D. c. ax. 115° ⌒ — 1. D. c. ax. 25° $= {}^{20}/_{XL}$. Javal showed 1. D. ax. 115° — 25°.

March 9. The eye was enucleated. The extensive in-

volvement of the base of the iris and the intimate contact with the cornea precluded the possibility of completely removing the growth by an iridectomy. The eye was placed in five per cent. formol solution. After twenty-four hours it was frozen and divided in two, the section extending in an oblique direction so as to bisect the growth. (See Fig. 1.)

FIG. 1.

October 1. There was no evidence of any trouble in the socket.

HISTOLOGICAL EXAMINATION.

BY ADOLF ALT, M.D.

The part of the tumor which, through Dr. Ray's kindness I was given for examination, is probably less than half of it. Macroscopically, it is apparently a solid tumor, more or less lens-shaped, which on the peripheral side fills the iris-angle, and on the axial side reaches somewhat beyond the pupillary margin of the iris into the pupillary area. A small strip of iris-tissue can be traced on its posterior surface, so that the tumor seems to lie more upon the iris than to have sprung from it. Its frontal surface is somewhat nodular and

recedes from the cornea at a considerable distance in front of the junction between the ligamentum pectinatum and Descemet's membrane.

In accordance with the macroscopical appearance, I find that the tumor starts from the iris-angle, which it fills completely. Its posterior surface here is in firm connection with the anterior surface of the ciliary body, which is, so to speak, scooped out back to the ciliary muscle by the growth. Yet, this scooping out does not seem to have been due to the pressure and consequent atrophy of the tissue of the ciliary

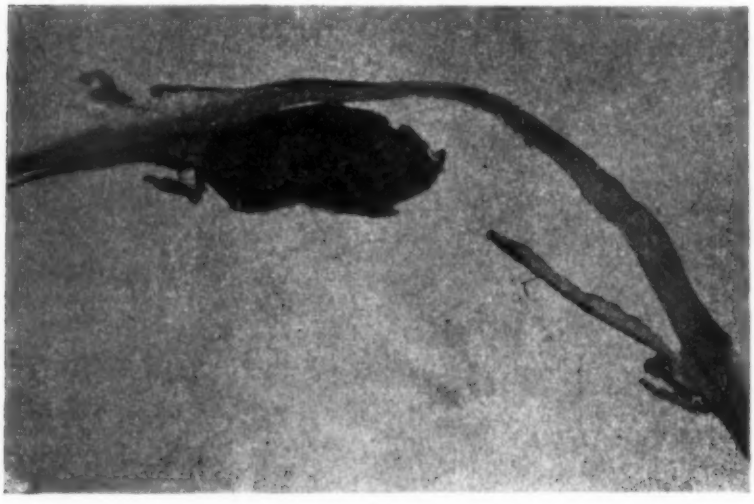

FIG. 2.

body by the backward growth of the tumor, as the posterior part of the ciliary body and the ciliary muscle are perfectly unaltered. It rather gives the impression as if the tumor had originated in this part and then grown forward and inward on the iris. This view is, perhaps, the more strengthened by the fact that a number of small nests of epithelial cells are found embedded in the tumor-tissue near this place, which I take to be cells from the retinal layer of the ciliary body. These cells are partly pigmentation. (See Fig. 2.)

The tumor, in growing forward, has become firmly attached to the compressed fibres of the ligamentum pectinatum and to Descemet's membrane for some distance in front

of this. Forward of this part Descemet's membrane together with the tumor attached to it has for a small space become detached from the corneal tissue—just behind that part where the tumor recedes from the cornea altogether. At this point there is a small round-cell infiltration in the cornea—the only one in this eye.

The posterior surface of the tumor involves the anterior parts of the iris, but it leaves the posterior third as well as the pigment layer of this membrane more or less intact. There is a larger amount of this intact iris-tissue near and at the periphery of this membrane than at its pupillary edge.

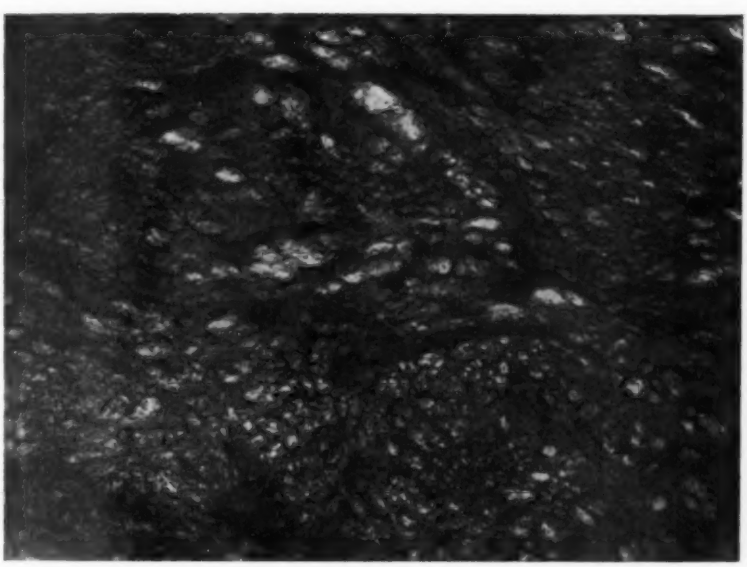

FIG. 3.

The parts of the tumor which are adherent to the iris-tissue, to that of the ciliary body, and to the cornea, forwards to beyond the ligamentum pectinatum, are darkly pigmented. From the point where the tumor recedes from the cornea the pigmentation of its anterior surface grows less and less towards its pupillary surface, which agrees well with the clinical appearance. The bulk of the tumor contains comparatively little pigment. Schlemm's canal on this side is filled with pigment.

The tissue of the growth itself is, in the main, made up of spindle-cells which, by intervening fibrous connective tissue, are arranged in strands and bundles which contain here and there larger and smaller pigment accumulations.

What, however, gives this tumor its most peculiar and, to me, apparently unique and characteristic appearance, is the presence of innumerable smaller and larger cavities, which are enclosed between the spindle-cells in such a manner that sections of the growth viewed microscopically appear like a sieve. These cavities are mostly round or oval, sometimes more slit-like. A great many of them have an unbroken endothelial lining, in others only a part of their wall is covered with endothelium. By far the most of these cavities are empty, few contain some cellular elements. (See Fig. 3.)

There are also a few, and some quite large, cavities which contain blood, but they have no distinct blood-vessel walls and are probably of a similar if not of the same character as the innumerable empty cavities. Direct communications between the different cavities I have not been able to find.

The important question is, what is the character and origin of these peculiar cavities which are evidently as much part and parsel of the growth as are the spindle-cells. They might be cysts, lymph-vessels or capillary blood-vessels. However, I think the question can only be between lymph-vessels and blood-vessels. Yet, there are no direct means of deciding this point, especially as I have been unable to find any similar cases in literature, neither do we know of distinct lymph-vessels in the iris.

It has, however, been my good fortune to receive the section of a very similar tumor of the iris by the kindness of Dr. A. R. Amos, of Des Moines, Iowa, which seems to throw more light on the subject.

The specimens were accompanied by the following letter which explains itself:

"Dear Doctor—At your request I send a box containing a section and gelatine of preparation of the eye, the history of which is subjoined. This section is the best I now have, another one having been broken in the hands of a careless curator.

REPORT OF THE CASE OF TUMOR OF THE IRIS.

"Master O. J., 11 years of age, visited me August 20, 1898. An ovoid dark-colored, slightly mottled mass filled the greater part of the nasal half of the anterior chamber of the left eye. It had been first observed by the patient when he was two or three years of age. The tumor appears to start from the root of the iris which it displaces a trifle backwards. There seems to be a slight opacity of the cornea at one point overlying the tumor. There is now no ocular injection, although when the tumor began to grow the eye was red

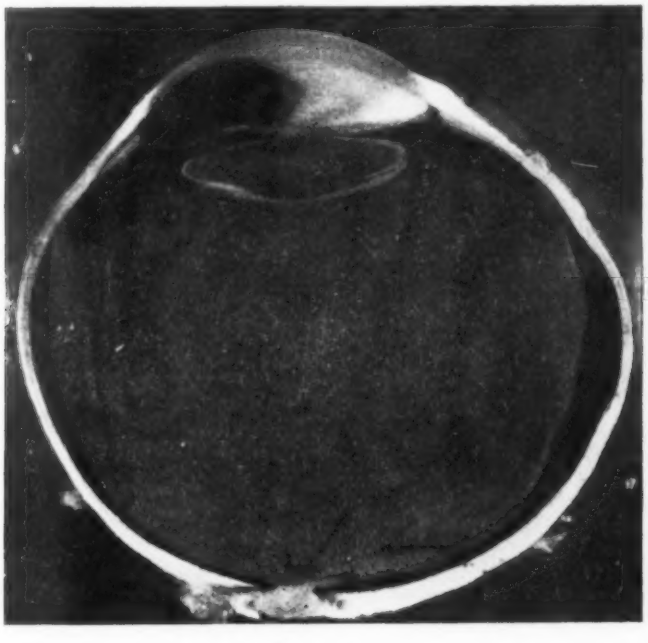

FIG. 4.

and painful for a period of six weeks. T. n. The pupil is circular and reacts to light and accommodation. Vision is entirely destroyed in the nasal half of the field; the temporal half is normal; central vision $= {}^{20}/_{LXXX}$. The fundus shows no lesion. There are no evidences of metastatic extension beyond the anterior chamber. There is, also, no family history of malignant disease. The perfect mobility of the pupil and the choked appearance of the angle of the anterior

chamber seemed to show that the tumor had its origin at the root of the iris, and fearing extension into the ciliary body, I recommended the enucleation of the eye. The patient was operated upon a few days later." (See Fig. 4.)

On section, this tumor appears very much like the one described above, but is darkly pigmented throughout. Macroscopic inspection shows that it contains numerous large cavities which give it a sponge-like appearance.

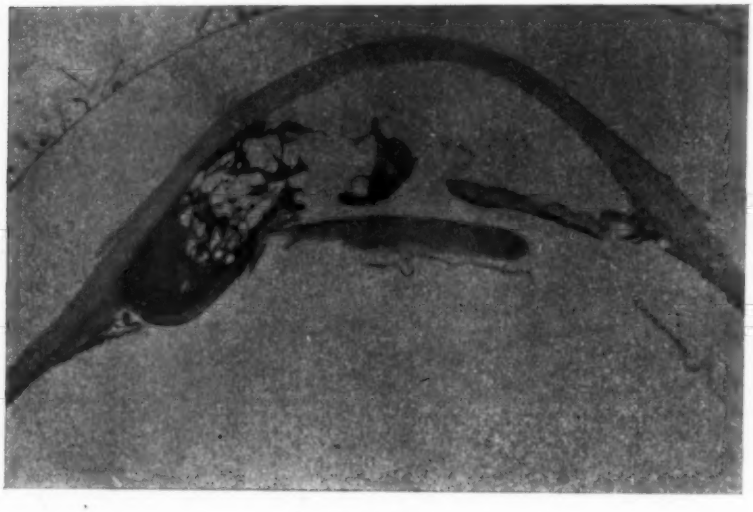

FIG. 5.

Like the tumor above described, it fills the iris-angle completely and is adherent to the compressed fibres of the ligamentum pectinatum and to Descemet's membrane in front of it. Then its anterior surface recedes from the cornea and bends inward over part of the pupillary area. Posteriorly, a narrow strip of iris-tissue is still visible and forms a base for the tumor, exactly like in Dr. Ray's case. The microscopical section, viewed with a low power, shows that the portion of the growth which lies in the iris-angle is more solid, while the parts removed from this locality are formed by a network of tissue enclosing large cavities. In the tumor under consideration the cavities are much larger and consequently less numerous than in the case described above. (See Fig. 5.)

On examination with higher powers it becomes apparent that this tumor is attached firmly only to the iris-angle and the iris-tissues in its immediate neighborhood, leaving about the pupillary third free, and to Descemet's membrane.

In the iris-angle, as in the first case, the tumor reaches backwards to the ciliary body to the anterior surface of the ciliary muscle, which, however, it invades but to a small distance.

FIG. 6.

The part filling the iris-angle is almost solid, except for a large number of blood-vessels. The remainder of the tumor virtually consists of very large round, oval and slit-like cavities separated from each other only by narrow strips of tissue.

The solid part of the tumor consists of closely-packed pigmented spindle-cells held together by a small amount of fibrous connective tissue. The trabeculæ separating the cavities, also, consist of spindle-cells and are covered on their surfaces toward the cavities by unmistakable endothelium. The cells of the latter appear in the section either spindle-shaped or more round and oval. In places there has been a local cell proliferation into the adjoining cavity. (See Fig. 6.)

In many of the cavities larger and smaller particles of pigment and cells containing pigment are found, yet it is impossible to say whether these particles were washed into the cavities during the manipulations of hardening, or were actually lying in the cavities during life.

The photographs, moreover, show what was not plainly visible with the microscope, that a grumous substance fills the cavities which looks very much like disintegrating blood-corpuscles. (See Fig. 7.)

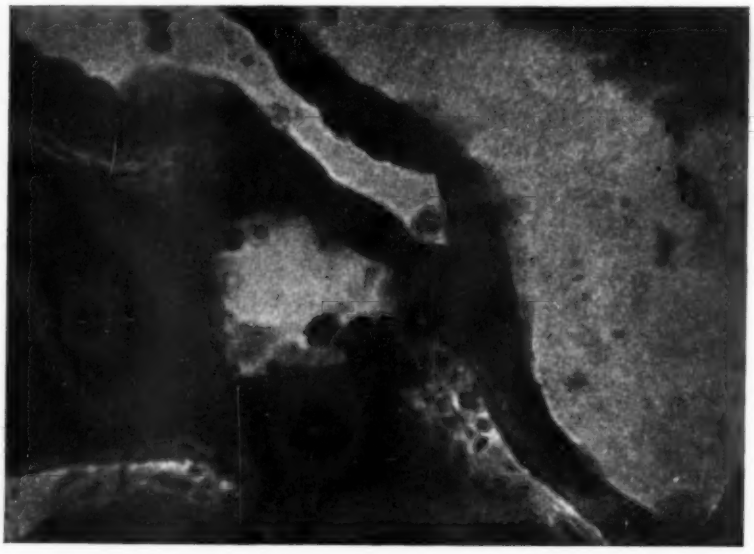

FIG. 7.

While the tissues of the eye in the case first described showed no inflammatory symptoms, no particular hyperæmia, and especially no cell-infiltration—not even in the parts lying close to the tumor—there is in this second case a small amount of cell-infiltration in the iris and ciliary body. It is, however, so small that it can not be spoken of as the zone of infiltration and inflammation which is so characteristic of malignant newformations.

The question then is, was the clinical diagnosis of sarcoma of the iris, made in both cases, the correct one? I think not.

In the first place, both cases are said to have started from a pigment spot in the iris observed early in life, and this, it is true, is often the history of an undoubted sarcoma. In Dr. Ray's case this spot had been noticed after an attack of erysipelas of the face when the patient was five years old. Even if we assume that this pigment spot had not existed before the period mentioned by the patient and had not simply escaped observation previous to this period, it had still consumed thirty-four years in developing to such an extent that its growth necessitated the removal of the eye. And, if we accept the patient's statement that the spot had only started to grow some four or five years before the enucleation, even this is a very long time for a sarcomatous growth to reach no larger dimensions than it had reached at the state of the enucleation, although sarcoma of the iris is usually of a slow growth.

In Dr. Amos' case the dark spot in the iris had been observed when the patient was two or three years old, and when the eye was enucleated the patient was eleven years of age. This again is, *a priori*, too long it seems for a sarcomatous growth to have obtained only such comparatively small proportions.

In the second place, the histological conditions, in spite of the more solid spindle-cell growths which fill the iris-angle, do not point to malignant newformations, as there is in the one case no inflammation and infiltration whatever in the periphery of the tumor and in the neighboring tissues, and in the other case the cell-infiltration of the iris and ciliary body is so slight that it can not be regarded as the infiltration zone characteristic of a malignant newformation.

These two considerations, together with the characteristic cavities, prompt me to believe that we have here to deal with two cases of *vascular nævus* of the iris. The tumor in the first case containing innumerable cavities which I take to be capillaries, I should therefore designate as a *capillary angioma;* while the tumor in the second case evidently represents a *cavernous* or *venous angioma*.

Mooren and von Graefe have both given the clinical report of probably one and the same case in which there existed a tumor of the iris which bled frequently into the ante-

rior chamber and which they therefore considered to be of a vascular character. Wolfe, also, has reported such a case clinically. Schirmer seems to be the only one who removed an iris-tumor which, on microscopical examination, he considered to be a cavernous angioma. The original description of this case I can not obtain. It is mentioned by L. von Wecker in *Graefe and Saemisch*, Vol. IV, No. 2, p. 551.

Tumors of the iris have not infrequently been reported and described in the last thirty years. Aside from cystic tumors, the iris-tumors were, as a rule, considered to be sarcomata. Of these, Veasey collected some years ago forty, yet their number is considerably larger now. While nearly every text-book mentions that vascular tumors or nævi have in rare cases been found in the iris, as a rule no data nor descriptions are given. It seems, therefore, that aside from Schirmer's little-known case, the two cases of angioma of the iris examined by myself and here reported are the only ones histologically examined, and on that account they deserve to be placed on record *in extenso*.

THE FACE AND PUPIL IN ALCOHOLIC NEURITIS.*

By SIR T. LAUDER BRUNTON, M.D., F.R.S.,
Physician to St. Bartholomew's Hospital, London.

ALCOHOLIC NEURITIS is so common, and the literature about it so extensive, that the signs I am about to mention have probably already been described before, yet I have not come across a description of them, and should be glad to learn if such a description has appeared.

The loss of knee-jerk and extreme hyperæsthesia of the skin in advanced cases are of course known to everyone, but before these occur, and while the knee-jerk may be only sluggish or may even be unaltered, a peculiar expression of the face is sometimes noticeable. The face becomes mask-like

*British Medical Journal, December 1, 1900.

and expressionless, the lips appear to move apart from the cheeks, but what is sometimes still more extraordinary the lips themselves may seem very mobile. The eyebrows and eyes may move in accordance with the lips, but a fixed and unexpressionless band stretches across the nose and cheeks between the eyes and lips, the skin upon the cheeks remaining motionless and unwrinkled, while the lips, eyebrows, and forehead may be moving freely. I was much struck by this condition on seeing it one morning in two patients successively. In the first patient I had no difficulty in obtaining a history of alcoholism. As the second one entered the room I was struck by the similarity between the appearance of his face and that of his predecessor, but I could only elicit a history of excessive smoking both from himself and his wife; they both assured me that while the patient smoked excessively he was exceedingly temperate in regard to alcohol. A few days afterwards, however, I had a letter from the patient's partner saying, "I suppuse So-and-so told you that he had been taking a great deal more spirit than was good for him?"

Another point is the condition of the pupil reflex, which is just the converse of the Argyll-Robertson phenomenon. In a number of cases of alcoholic neuritis I have noticed that the reflex of the pupil to light is rapid and extensive, whereas the contraction of the pupil on accommodation to a near object is slight and sluggish or entirely wanting. Indeed in one or two cases I have observed a dilatation instead of contraction on accommodation.

MEDICAL SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, June 18, 1900.

G. Anderson Critchett, M.A., F.R.C.S. Edin., President in the Chair.

Blindness from Bullet Wound of the Orbit.

Mr. Nettleship gave details of six cases in which the sight of one or sometimes of both eyes was lost or impaired by the passage of a bullet through the orbit without wounding the eyeball. These had been written as "indirect gunshot injuries of the eye," in which the passage of a bullet through some part of the orbit was followed immediately by free bleeding into the vitreous, and as this cleared up, by various and mixed appearances of choroidal rupture, choroido-retinal exudation, and changes at the disc without shrinking of the eyeball or any sign that the globe had been ruptured. The question as to how these injuries were produced was answered by the description of a case in which the eye was excised by Cohn and examined by Waldeyer in 1871. Cohn concluded that a contusion which directly affected only the outer surface of the sclerotic might set up severe and extensive plastic inflammation in the subjacent retina and vitreous. Mr. Nettleship mentioned other cases by Cohn, as well as one shown before the Society last year by Mr. F. Menteith Ogilvie. He then described his cases in detail. The feature of interest in them was the extensive damage of the choroid and retina without wound of the eyeball. These indirect injuries were to be explained by the force of the projectile being changed into radiating vibrations of the tissue particles, which, as Professor Stevenson of Netley said, "act as secondary missiles." These, passing

through the dense sclerotic without damaging it, seriously injure the less resisting choroid and retina whilst dragging on the muscular insertions by the bullet, might also contribute towards the injury. Mr. Nettleship mentioned some interesting experiments by Cohn and Stevenson, which had also been verified by himself, in which they had fired bullets at cylindrical metal vessels, some containing air only, and others water, in both cases with no lid on the top. He showed photographs and the actual cylinders from his own experiments. In the former cases the bullet went through without producing much effect on the surrounding parts, but in the latter, in which the cylinder contained water, the vibrations set up in the fluid had produced very marked changes around the holes made by the bullets. In this way the spinal cord might be injured by vibrations passing through the bone without fracturing the latter. He then compared the results of bullet wounds with those of optico-ciliary neurotomy, and also with the experimental evidence produced by Poncet, who in healthy rabbits cut the optic nerves and the posterior ciliary nerves. This latter caused, from the eighth day onwards, degeneration of the nerve elements of the retina, with increase of its fibrous structures, marked papillitis, and some inflammation on the outer surface of the vitreous; later on the choroid, near the disc, became atrophied, and finally the degenerated retina became pigmented. In all these cases there was a great tendency for the retina and choroid to become united by inflammation, and this explained the slight tendency there was to detachment. In most of the gunshot cases other cranial nerves were involved, and the commonest paralytic sign was ptosis.

Other cases were mentioned by Messrs. Donald Gunn, Hartridge, Gruber, Treacher Collins (who had had two) and the President.

Orthoptic Treatment of Convergent Squint in Young Children.

Mr. C. Worth said that the treatment adopted by most surgeons was as follows: The refraction was corrected and glasses were worn constantly. In nearly 30 per cent. of

constant monolateral squint this treatment sufficed to render the eyes "straight," and in some of them binocular vision was obtained and the case was cured. In the 70 per cent. which were not cured by glasses, operative treatment was postponed until the age of 7 to 8 years, but only a small proportion of these obtained binocular vision, the time having gone by when this might have been developed. There were three chief difficulties to be overcome in carrying out orthoptic treatment in young children: (1) The child would only submit to treatment so long as he found it interesting; (2) the suppression of the vision of the squinting eye; (3) the angle of the squint was usually so great that an ordinary stereoscope could not be used even if there were no suppression. This latter difficulty was overcome by an instrument invented by the author which could be adapted to suit a squint of any angle or direction, and so stereoscopic vision was possible. The instrument was shown and carefully described. He found that those who saw binocularly naturally arranged themselves into three distinct classes, according to the degree in which they possess this faculty, thus—first grade, simultaneous macular perception; second grade, true fusion with some amplitude; third grade, sense of perspective. Mr. Worth then described the treatment: Before commencing it the visual acuity of the child's squinting eye was obtained in the manner which he described. The instrument was then adapted to suit the angle and direction of the squint, and a cage, for instance, was shown before the fixing eye and a bird before the squinting eye. The child then saw only the cage with the fixing eye. The illumination of this was gradually diminished while that of the bird was increased until the bird was seen. Should the cage then have disappeared, the illumination was modified until the bird was seen in the cage. Many other devices were used until the patient learned to blend the two images, and so reached grade I. After a time the angle of the instrument might be altered slightly without destroying the picture; the eyes followed the object and maintained fusion, and so grade II was used. Exercises were then continued until the third grade of binocular vision was obtained. Next, the illumination of the object slides was gradually equalized, and then

an attempt was made to separate the mirrors more and more while the visual axes followed the deviation of the objects. The author had carried out treatment in some hundreds of cases, and in a large proportion it had caused a disappearance of the squint and the acquisition of the highest grade of binocular vision. In other cases, though patients had grade III while looking into the instrument, the squint did not disappear. An occasional visit, with exercises, was sufficient to preserve the fusion faculty until the child had arrived at an appropriate age for operation. The desire for fusion then overcame any slight defect which might remain, and a perfect cure resulted. The special points of this instrument were: (1) Its adaptability to any form or degree of squint, including those cases in which the globe was rotated about an antero-posterior axis; (2) suppression of vision of squinting eyes was gradually overcome by unequal illumination; (3) the variety of devices shown in the instrument interested and amused the child, so that he would readily give all the help he could at a most important point.

Cysticercus of the Eye.

A case of cysticercus in the eye, which had come under the care of Dr. David Wood, of Capetown, was, in his absence, related by Mr. Nettleship. The patient was a French cook, who was first seen by Dr. Wood on April 6, 1900, after spending some time on the Modder River. On dilating the pupil he saw some choroidal changes, and on the outer side a large round greyish body. On May 2d he saw the living cysticercus moving its suckers, and the hooklets were also visible; the vision was failing. In June the vision was worse, and by July 15 it amounted to P. L. only, and this was due to the fact that the retina was becoming detached. The cyst was then loose in the eyeball, but no details of the head were visible. On arrival in England in August Mr. Nettleship saw the patient. There was then a large cyst seen at the upper part of the vitreous covered with fine white calcareous bodies. A dense white patch was seen in one part, which frequently gave a heaving movement. On September 7 movements were still visible. The eye being blind the question of operation was not entertained. The

patient had now gone back to South Africa, and this was the last note up to the present time. The man had first noticed some affection of the eye in November last.

MR. LANG expressed surprise that in the early stage, when it was (he thought) subretinal, no operation was undertaken.

MR. NETTLESHIP, however, stated that he gathered from Dr. Wood's notes that it was in the vitreous when he first saw it.

DR. LITTLE (Manchester) said he had seen five or six cases of cysticercus in the vitreous, and in appearance they resembled that described by Dr. Wood. If left to themselves the eye became blind by slow but progressive choroido-retinitis. In two he had tried to extract the cyst, but this was not successful, and in both the eyes became worse and had to be excised a few months later. Some had been successfully removed, but his own experience led him to look upon the prognosis as extremely bad, whether an operation were attempted or not.

CARD SPECIMENS.

The following specimens were shown: Mr. H. Work Dodd.—Voluntary bilateral nystagmus. Mr. E. K. Campbell.—Double cataract after typhoid fever. Mr. Grimsdale.—Double congenital lachrymal fistula. Mr. W. Lang.—Rupture of nerve fibres at the optic papilla. Dr. Edridge-Green.—A case of trichromic color blindness. Mr. John Griffith.—Symmetrical exostoses in the neighborhood of the lachrymal sac. Mr. Treacher Collins and Dr. J. S. Hinnell.—Diminished tension and the appearance of optic neuritis persisting for nine months after a wound of the orbit by a shot from an air gun. Mr. J. Herbert Fisher.—Tubercle of conjunctiva.

Thursday, November 8, 1900.

G. ANDERSON CRITCHETT, M.A., F.R.C.S. Edin., President, in the Chair.

INFLUENCE OF THE EYE ON THE GROWTH OF THE ORBIT.

DR. W. ERNEST THOMSON read a paper on the determination of the influence of the eye on the growth of the orbit by

experimental enucleation of one eye in young animals. The research was undertaken in order to determine whether removal of an eye in early life resulted in faulty development of the orbit. Such faulty development had been both asserted and denied, although expermintal evidence had seemingly been hitherto wanting.

One eye in a series of rabbits was enucleated under ether about the twentieth day of life. The animals were kept for periods varying from six to eight months, and were then killed. The orbits were carefully measured and the results found to be a very marked difference between the normal and the anophthalmic side. The deficiency was very uniformly distributed over the length, height, and depth of the orbit, and amounted to something like 10 per cent. in the macerated skull, and from 10 to 15 per cent. in the wet condition. It thus appeared that the greater fault was in the development of the bones, and the lesser in that of the soft tissues. Lantern slides were shown which brought out the various points, and the skulls were themselves exhibited.

THE PRESIDENT thought the paper one of great interest and practical importance. He strongly advocated the insertion of artificial eyes early.

DR. GRUBER thought that the attachment of the muscles to the eyeball, and the increased blood supply consequent on the normal functions of the orbit being exercised had far more to do with the development of the orbit than had the mere presence of an artificial eye in the conjunctival sac.

DR. THOMSON briefly replied.

ETIOLOGY OF LAMELLAR CATARACT.

MR. NORMAN G. BENNETT read a paper on this subject. He began by referring to the measurements of lenses taken by Bernand Duband and Treacher Collins, either ophthalmoscopically during life or after removal of the lens, from which it appeared that the diameter of the opaque zone was never larger than that of the lens at birth, and that, therefore, either the lesion was occasioned before birth, or the part affected was not the most peripheral at the time of its occurrence. He then described the structure of the hypoplastic teeth usually associated with lamellar cataract, and detailed

the dates of calcification of the two dentitions according to the investigations of Röse, showing what parts of the teeth might be affected by any cause acting during the first two years of life.

Mr. Bennett described minutely the teeth as they existed in twenty-two cases of lamellar cataract which he had collected. They naturally fell into two classes on the basis of the extent of enamel affected, but in both classes it appeared evident, if the facts were taken in conjunction with the dates of calcification as investigated by Röse, that the affection had its commencement almost immediately after birth. Its period varied considerably in one class of cases, and appeared to be about two years in the other larger class. The exact causation had long been a matter for discussion. After referring to the various causes that had been suggested from time to time, Mr. Bennett described a large number of cases of hypoplastic teeth, showing that among those not associated with lamellar cataract the same uniformity of type was not met with, the determining cause of the defect obviously having occurred at a much later date in a large number of cases. From a number of cases with definite histories he showed that this latter type of tooth was frequently, though not always, the result of an exanthematous fever, whereas those more frequent cases of teeth affected soon after birth were often associated with a history of convulsions and general disturbance of health of an indefinite kind. Sometimes the teeth would have two or more horizontal depressions corresponding with a series of definite attacks of illness.

The inference was, then, that lamellar cataract was a disease of early infantile life, occasioned by some general derangement of health, the most probable being errors of diet and nutrition. In emphasizing this conclusion, Mr. Bennett referred to the developmental similarity between lens and enamel, and cited an opinion of Mr. Collins to show that the inferences he drew were not necessarily inconsistent with those afforded by the measurement of lenses referred to above, but that lamellar cataract might be the result of contraction of the nucleus of the lens some time after birth.

The President asked Mr. Bennett whether he had no-

ticed the disease to occur in many members of the same family, and he recounted a case which had occurred in his own practice in which there was a very strong family history. The father suffered from lamellar cataract, while two of his children were affected with the disease; he had or had had seven cousins affected, as well as one niece and two sisters.

Mr. Treacher Collins stated that he had investigated ten cases of congenital cataract, but in none of them was the enamel defective.

Mr. John Griffith expressed his strong opinion that the disease was a congenital and not an infantile one.

Mr. Bennett briefly replied, and in answer to the President's question he stated that he had not carefully investigated the family history.

Card Specimens.

The following card specimens were shown: Mr. Simeon Snell.—Epithelioma of the cornea. The patient was a soldier, aged 45, with a history of injury seven years ago. In May, 1898, it was removed, but it recurred. Mr. Snell first saw the patient in August, 1900, when the growth filled the interpalpebral space. The eyeball was enucleated, and the tumor shown to be an epithelioma. Mr. John Griffith.—Specimen of osteosarcoma of the orbit. Mr. Treacher Collins and Mr. Vernon Ford.—Case of bullet wound of the orbit followed by blindness of both eyes. The patient was with Admiral Sir E. H. Seymour's expedition for the relief of Pekin. He was shot through the head with a bullet, and it was found that in one eye the choroid was ruptured, while in the other the retina was detached. Mr. A. W. Ormond.—Chancre of the upper lid at the retrotarsal fold.—*British Medical Journal.*

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.,

ST. LOUIS, MO.

PREVALENT ERRORS REGARDING THE DIAGNOSIS AND TREATMENT OF "EYE-STRAIN" FROM VARIOUS CAUSES.

Ambrose M. Ranney (*New York Medical Journal*, Oct. 6, 1900) in speaking of "refractionist," "eye-testing parlors," etc., says: "That untold harm is being done by these men cannot be doubted. The evil is sure to continue and grow until the medical profession and the general public at large are made to realize the truth and importance of the following statements:

1. The proper selection of glasses is most important from the standpoint of future health. Serious harm to the eyes (and general health as well) may follow the bad refractive work done by inexperienced people.

2. No glasses should ever be bought without a prescription being first obtained from an oculist; not a so-called "refractionist," but one who is a medical graduate in good standing.

3. No glasses (even when prescribed by a competent oculis) should ever be used until the correct grinding of the glass and its settings are verified by the oculist who prescribed it."

The author coucludes his paper with the following axioms.

1. All errors of refraction (manifest and latent) should first be very accurately determined, and as far as possible corrected for both distant and near points.

2. A mydriatic should be employed before suspected latent refractive errors are finally decided upon. Exceptions to this rule of procedure are rare.

3. The opthalmometer of Javal should first be employed to detect and measure corneal astigmatism. Subsequently

cylindrical trial lenses should be employed to verify the instrument of Javal or to detect astigmatism of the lens.

4. Neither retinoscopy, trial lenses, nor the opthalmoscope are positive and trustworthy in estimating "latent" refractive errors. The former is probably the best of the three in skillful hands; but serious errors may be made even by a competent retinoscopist.

5. A marked difference in the refraction of the two eyes should be corrected by proper lenses *at all times and for all points*. This is vital to good work on eye-muscle as a preliminary step.

6. Clyindrical glasses should preferably, but not necessarily, be set in spectacle frames, in order to lessen the danger of alteration in the axis of the cylinder.

7. No glasses prescribed should ever be worn by a patient until they have been inspected and verified by the oculist who prescribed them.

8. The frames selected by the patient or optician should always be inspected by the oculist with care to guard against decentered lenses. Each pupil should accurately correspond to the centre of the corresponding lens. In children, the frames may have to be changed from time to time, on account of the head and face.

9. Patients should be personally instructed by the oculist to observe any decentering of their own lenses, that often occurs from the bending of the frames or nose-clips; also to personally test the vision of each eye separately from time to time (by means of a test card) to see if the refractive correction remains perfect.

Such education of the laity unquestionably takes much time and trouble; but it pays in the end by giving the patient valuable information that may prevent relapses of some previous nervous or eye-disturbances.

10. Patients should always be cautioned by oculists to always have their lenses verified whenever they fall out of the frames and are replaced, or whenever a lens gets broken and a new one is made.

The stupid blunders that are not infrequently made by jewelers and opticians are more apt in this way to be detected early; and the oculist (who is most apt to be held ac-

countable for the distress caused by other's blunders) may hold the patronage of his patient longer by timely words of caution.

11. All tests made to determine either the power of individual muscles of the orbit or the presence or absence of equilibrium of the ocular muscles, or of no positive value until all errors of refraction are determined and properly corrected by lenses.

12. The first "muscular test" made upon any patient by the oculist should be recorded as revealing only the "manifest" muscular errors (in contradistinction to "latent" muscular errors); and these tests should invariably be made with the proper lenses placed before the eyes of the patient to correct refractive errors, if any exist.

13. The "manifest" muscular errors (revealed at the first examination) should never be regarded as possessing much clinical importance, except as possible pointers toward some special type of heterophoria and a guide to the oculist in searching for "latent" heterophoria.

Nothing indicates so clearly the inexperience of the absolute tyro in the investigation of "eye-strain" as to hear and read the statements of oculists (often men of distinction in other lines of ophthalmology) that they "found only one degree of some anomaly," that "this defect was too insignificant to be considered seriously," and other similar expressions formed after only one interview with a patient suffering from some form of "latent heterophoria." Such expressions make experienced men wonder and laugh.

14. The most positive and uniform standard of power in any of the ocular muscles (when studying some puzzling case of suspected heterophoria) is *the normal power of abduction.*

Whenever the abduction falls below 8°, latent esophoria may safely be suspected; whenever it exceed 8°, exophoria is apt to be present—although genuine exophoria is less common than most oculists seem to suppose.

Too much stress cannot be laid upon this point, whenever an oculist is called upon to interpret the records of muscular tests in any individual case.

15. A marked difference in the *power of sursumduction*

on the two eyes is always to be regarded as a suspicious sign of hyperphoria.

16. It is usually wise to follow up suspected latent hyperphoria with vertical prisms, prior to any investigation of apparent anomalies of the internal or external muscles, whenever hypo-esophoria or hypo-exophoria seem to exist.

Manifest or latent anomalies of the verticle muscles in the orbit should be investigated first, as a rule, and rectified before coexisting anomalies of the lateral muscles are treated. There are exceptions to this rule of procedure, but it is a wise one to follow in most cases.

17. Whenever the refraction of a patient requires the constant wearing of glasses to correct it, the investigation of heterphoria by the wearing of prisms is most easily made through the aid of lorgnette frames that can be attached to spectacled frames by means of small hooks.

I keep a large assortment of such frames as part of my office equipment, with different bridges and interpupillary distances, so as to fit almost any form of spectacle frame. My office stock of prisms are so made as to be interchangeable and to fit all of my office frames.

18. Operative procedures upon the eye-muscles should never be too hastily performed. It is vitally important, to insure the best results in any case, that the effects of accurate refractive correction (and possibly of prisms also) be noted for a time; and that repeated muscular tests be made before any surgical steps for its radical correction be advised or undertaken.

It usually takes time, patience, experience, modern instruments and much common good sense to successfully solve a complex eye-problem and to rectify an eye-condition that may be causing eye-disturbances, eye-disease, nervous derangements.

USE AND ABUSE OF POTASSIUM IODID IN OPHTHALMIC PRACTICE.

Albert Rufus Baker (*Journal A. M. A.*, November 17, gives his experience with potassium iodide in intraocular diseases, and draws the following conclusions:

1. Iodid of potash should generally be administered in

rapidly increasing doses until from 1 to 500 grains are given daily.

2. The drug should always be given after eating, and well diluted with water.

3. Frequent hot baths are essential to the best results in the use of the remedy.

4. Not infrequently large doses will be tolerated when smaller ones cannot be well taken.

5. The use of the large doses is not limited to syphilitic cases.

6. Large doses are indicated in: optic neuritis; ocular paralysis; choroiditis; serous iritis and in relapsing iritis; cylitis and interstitial keratitis.

7. It is contraindicated in gray atrophy of optic nerve.

8. Albumin in the urine, generally speaking, is a contra-indication for large doses of iodid.

9. Young children do not take the iodid kindly and it should be administered cautiously.

10. The remedy is of doubtful value in early syphilitic iritis.

11. Large dose are of doubtful utilily in the removal of post-operative exudates, but should be given further trial.

LESSONS FROM A FIRST SERIES OF ONE HUNDRED CATARACT OPERATIONS.

F. T. Rogers, (*New York Medical Journal*, October 6), in this series did simple extraction in eighteen cases, and the combined operation in sixty-six. He prefers the method with indectomy for the following reasons:

1. In one sense it simplifies the operation, rendering it easier to expel the lens and soft cortical matter through the large coloboma, and lessens the frequency of secondary cataracts.

2. There is less danger of prolapse of the iris.

3. The clean excision of the iris is no more likely to cause inflamatory action than the traumatism to which it is subjected by the expulsion of the lens in simple extraction.

4. It requires less skill and delicacy of touch, and thus lessens the dangers of complications.

5. With care in replacing the angle of the excised iris and any bits of capsule, there is no greater danger of incarceration in the lips of the wound.

6. It does not materially affect the mobility of pupil.

7. While the cosmetic effect is not so perfect as in the simple extraction, the upper lid so completely hides the coloboma that, even if the cosmetic effect was the desideratum instead of acuity of vision, there would be little in favor of the simple method.

From a study of these cases the author draws the following conclusions:

1. More attention should be paid to the general condidition of the patient, and the presence of any systemic disturbance should influence the prognosis.

2. All operative procedures on the crystalline body should be done under the best possible illumination.

3. Providing that it is large enough, the exact site of the corneal section does not materially influence the result.

4. The combined operation is the safest and the easiest for the operator of limited experience.

5. The most frequent complications, iritis and iridocyclitis, should be combated by the early instillation of atropin, and their existence does not necessarily prevent an ultimate good result.

6. Discission of the capsule can be done with comparative safety and materially increases the acuity of vision.

7. Infection of the wound does not in all cases destroy the sight, and careful and assiduous treatment may save an apparently doomed eye.

8. The experience gained in the first series of operations has, besides improving the technique of operation, impressed me profoundly with the possible dangers which may arise and prevent me advising operative procedures so freely as I have done in the past without a frank statement to the patient of the possible outcome.

9. For some reason, which I hope will be brought out in the discussion, I have had more iritis in these cases than I should, but whether due to defective skill in operating or insufficient care in the after-treatment I am unable to decide.

IMPLANTATION OF AN ARTIFICIAL VITREUS; MULES' OPERATION.

M. L. Foster (*New York Medical Journal*, October 6, 1900) refers to three cases, two of which were operated on by himself. He finds that the great advantage of Mules' operation is that the glass ball within the sclera maintains the muscular apparatus of the eye in nearly its normal position, and so seems its better action, which results in better motility of an artificial eye when properly fitted. The most serious objection he finds to be the prolonged convalescence, which lasts from ten to fifteen days—about double the time of that following enucleation. Failure of the operation with extrusion of the glass ball sometimes happens. It may be the result of the insertion of too large a glass ball, suppuration or the absorption of catgut sutures in the sclera before the edges of the wound have become firmly united. It seems wise to use the smallest-sized ball in every case, and to use silk to unite the edges of the sclera.

THE USE OF PROTARGOL IN DISEASES OF THE EYE.

This subject was discussed at a meeting of the Chicago Ophthalmological and Otological Society, held October 9, 1900.

Dr. J. E. Colburn reported three cases of acute inflammation of the lacrymal sac following an attack of influenza which yielded promptly to injections of a 5 per cent. solution of protargol. He dilates the puncture with a cone-shaped dilator, and injects the protargol into the sac with a dental syringe. One injection with the use of an ice compress was all that was necessary.

Dr. A. E. Bulson, Jr., gets results with a 50 per cent. solution that he can not get with a weaker solution. He agrees with Dr. Colburn that protargol in lacrymal abscesses and in the treatment of all forms of dacryocystitis yields very gratifying results.

Dr. Hotz had no results with protargol until he adopted a 20 per cent. solution as his standard. He finds the stronger solution causes no more irritation and pain than weaker solutions. In a case of blennorrhœal ophthalmia the 5 per

cent. solution was absolutely worthless; the 20 per cent. solution was remarkably effectual.

Dr. C. P. Prichard finds that protargal stains the conjunctiva much more rapidly than nitrate of silver.

Dr. W. H. Wilder finds nothing so effective in sago-grain trachoma as a 25 per cent. solution of protargol in equal parts of glycerine and water. Months of treatment have never resulted in staining.

Dr. C. D. Wescott reported one case of staining of the conjunctiva from the use of a 10 per cent. solution of every day for two weeks.

Dr. Colburn recommends a 10 to 30 per cent. solution for conjunctivitis but not for dacryocystitis, as it produces too much pain. He always washes the conjunctival sac with a solution of biborate before and fifteen minuter after using the protargol.

THE SIGNIFICANCE AND PATHOLOGY OF THE ARGYLL-ROBERTSON PUPIL.

Wilfred Harris (*British Medical Journal*, September 29, 1900) makes the following points: Though the Argyll-Robertson pupil is chiefly seen in locomotor ataxia and general paralysis, it may be found in many other diseases. It should be looked upon as an almost certain sign of antecedent syphilis, either congenital or acquired. The author has seen it in juvenile locomotor ataxia and general paralysis with marked evidence of congenital syphilis, in progressive muscular atrophy, in lead poisoning, aortic aneurysm, hemiplegia, syphilitic meningitis, ataxic paraplegia, nuclear ophthalmoplegia, choroiditis, and in numerous instances in patients who presented themselves with all manners of symptoms, but showing no signs of ataxia or anæsthesia, and with normal or even brisk knee-jerks, but in almost every instance with a clear history of syphilis. It seems most probable, in the absence of direct pathologic evidence, that the Argyll-Robertson pupil is due to sclerosis of the non-decussating Meynert's fibers, on one or both sides, according as the loss of light reaction is unilateral or bilateral, rather than due to any nuclear degeneration.

OBITUARY.

HENRY D. NOYES, M.D.

Dr. Henry D. Noyes, one of the best-known American oculists, died at New York City on November 12, 1900. He was not only a very successful practitioner, but a frequent contributor to scientific literature. His text-book on Ophthalmology has given him a lasting name in the profession.

The following recognition of his services to the New York Eye and Ear Infirmary by its staff expresses fitly the high esteem in which he was held by his co-laborers:

Dr. Henry D. Noyes was a graduate of the College of Physicians and Surgeons in the year 1855. After serving on the house staff of the New York Hospital, he went to Europe to continue his studies. Having devoted himself to special work in the ophthalmic clinics there, and latterly having been a student of von Graefe in Berlin, he returned to America, and in September, 1859, was appointed an assistant surgeon to this infirmary. In November, 1864, he was made surgeon. From 1873 until 1898 he served as executive surgeon, and on October 23, 1900, his resignation as a member of the surgical staff was received by the board of directors—by the board at whose councils he had sat for a period of thirty-six years.

This long service of one who during nearly the entire time held the foremost position in conducting the affairs of the institution covers more than half the period that has elapsed since the foundation of the infirmary. These years have seen marked changes in the growth of the institution, and a brief reference to the statistics furnished by our annual reports may not be out of place.

In the year 1859 there were 4,178 new dispensary patiente and 144 in the wards. In 1899 there were 47,684 new dispensary and 2,257 house patients. In 1859 the surgical

staff consisted of nine men. Now, eighty-three men are engaged in the work. In 1859 it was an eye infirmary. Now, there are the three departments of the eye, ear, and throat.

The well-ordered hospital of to-day, with its superintendent and clerks, its isolated wards and pavilion for contagious ophthalmia, its training-school for nurses, school of instruction for graduates of medicine, its annual volume of scientific transactions, its valuable medical library, owes in no small way its pre-eminence to the wise forethought and ceaseless activity of Dr. Noyes.

The rules and regulations of the infirmary were largely the result of his careful study, and it was perhaps characteristic of his unselfish devotion to the institution that, shortly before his resignation of the position of executive surgeon, he prepared rules that gave this office largely increased powers and left the enjoyment of them to his successor.

Bringing as he did to the discharge of his professional duties a vast knowledge of medicine, a facility and originality in operative procedure, he was unsparing of self in his devotion to those who came under his care. He was prompt in recognizing the value of suggestions made by others in his field of work, and his distinguished position as an author and teacher added to the fame of the institution both at home and abroad.

Throughout the years of his connection with the infirmary Dr. Noyes contended for an increase in our scientific and laboratory work. He urged that there could be no effective and perfectly developed charity that was not associated with scientific investigation.

Dr. Noyes died on the 12th of November, 1900. It is fitting that the medical staff of this institution, to the service of which he had devoted all the years of his active professional life, should record their appreciation of the work of a man who has contributed so largely to make the infirmary what it is. It is proper that at this time, feeling the irreparable loss they have sustained in his death, they should, in the spirit in which he lived, dedicate themselves anew to its service, not alone as ministers to humanity, but also as ministers to knowledge in medicine.

BOOK REVIEWS.

PHYSIOLOGIC OPTICS:—DIOPTRICS OF THE EYE, FUNCTIONS OF THE RETINA, OCULAR MOVEMENTS, AND BINOCULAR VISION. By DR. M. TSCHERNING. Authorized translation, by CARL WEILAND, M.D. With 212 illustrations. [Philadelphia: *The Keystone*. 1900. Price, $3.50.]

This excellent treatise, which we have taken occasion to recommend to our readers when the original book had been issued, could not have found a better translator into the English language than Dr. C. Weiland, who himself is a well-known writer in the same field. It is based on Tscherning's original investigations, and this edition is somewhat enlarged and revised by the author.

We congratulate *The Keystone* for having brought out this work in such a creditable manner. No oculist can afford to be without it.

A MANUAL OF PERSONAL HYGIENE. By WALTER L. PYLE, A.M., M.D. With Six Contributors. Illustrated. [Philadelphia: W. B. Saunders & Co. 1900. Price, $3.50.]

A manual of personal hygiene is surely one of great interest, and the author has succeeded in giving us an excellent book. The hygiene of the eye forms the largest chapter and contains much about the eye affections which might, perhaps, have been omitted. Yet, this is no disadvantage. The book might, with propriety, be introduced into every family and thus do much good.

A HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. By HENRY R. SWANZY, A. M., M. A., F.R.C.S.I. Seventh Edition, With 165 illustrations. [Philadelphia: P. Blakiston's Son & Co. 1900. Price, $2.50.]

In this new edition of his well-known and highly practical textbook the author has made some very valuable additions, especially a chapter on the use of the Roentgen rays in ophthalmology. We can not add anything to our previous praises of this text-book. ALT.